

AP 10454

REMARKS

Claims

Claim Rejections – 15 USC § 103

Claims 11-15 and 18 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Krueger et al. in view of Rottenberg et al.

Claim 11 has been amended to reflect that the fuse bridge of the present invention is designed to respond to environmental heat, not to a current overload.

On page 2 of the clean version of the specification, in the last eight lines of the second paragraph, the specification states the following:

[T]he printed circuit board should be protected against the supply of heat acting from any sources whatsoever. To this end, the printed circuit board is furnished with special elements, which in contrast to safety fuses reliably prevent further current supply to the printed circuit board and, thus, the potential occurrence of additional heat sources, rather due to locally developing temperature increases instead of due to locally developing current densities.

In contrast to the current invention, Krueger's fuse bridges are covered with a thick protective coating (reference number 50 in Figs. 1 and 2, reference number 140 in Figs. 3-7). Krueger does not disclose the material of the protective coating 50, but protective coating 140 is a polymeric material, e.g. a polycarbonate (see column 6, lines 48-50). A protective coating of polymeric material in the thickness shown in Figs. 2, 4E, 6, and 7 will thermally insulate the fuse bridge from environmental heat.

Furthermore, the word "heat" is not present in the entire Krueger patent. Krueger's fuse bridge is apparently meant to be responsive to a current overload because Krueger refers to "electrical fuses" (column 1, line 43). Additionally, the fuse bridge have a decreased cross-section as it is customary in fuses breaking or melting due to a current overload and not due to environmental heat.

Likewise, Rottenburg states on page 4, paragraph 54 that "[a] current is forced through the metal conductor 55 until the current density in the thinned

AP 10454

region 52 of the metal conductor 55 is sufficient to melt it and the link 51 is opened." Accordingly Rottenberg's fuse as shown in the first embodiment reacts to an overload current, not to environmental temperature.

Rottenberg's second embodiment as shown in Fig 3c is not a fuse bridge, but a fusible contact that is made, not environmental heat, but by using voltage, to cause a "plasma," which melts the metal conductors 62 of the fusible link to establish the connection.

Finally, Montgomery uses a "good electrical and thermal insulator" as a "suppressive material" to separate and protect the strip conductors (see column 5, lines 4-12). Montgomery's fuse strips are thus insulated from environmental heat and only react to an overload current (column 6, lines 60-64). To this end, the fuse bridges have a reduced cross-section 22 as seen in the other electrical fuses.

The present invention, however, is not concerned with current overloads, but with heat outside the fuse bridge caused by malfunctioning components. Therefore the diameter of the fuse bridge need not be reduced to increase the heat generated by the current flowing through the fuse bridge. The fuse bridge of the present invention is not temperature-insulated and thus exposed to environmental heat and so that the fuse bridge will melt as soon as the environmental heat reaches the fuse bridge's melting point, even if no current flows through the fuse bridge. Thus the fuse bridge shuts local components off from the power supply to prevent further damage caused by heat.

In short, the current invention describes a heat fuse, while the prior art describes an electrical fuse.

Therefore, Applicant believes that claim 11 as amended is not obvious over the prior art and patentable.

Claims 12 to 19 depend on amended claim 11 and are thus believed to be patentable.

Claim 20 was rejected under 35 U.S.C. 103 (a) as being unpatentable over Krueger et al. in view of Rothenberg et al. and of Montgomery et al.

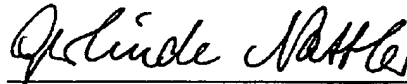
AP 10454

Claim 20 has been canceled.

CONCLUSION

Accordingly, Applicant believes that the claims as amended overcome the raised prior-art rejections.

Respectfully submitted,



Gerlinde M. Nattler
Registration No. 51,272
Continental Teves, Inc.
One Continental Drive
Auburn Hills, MI 48326
(248) 393-8721
Agent for Applicants